

DUAL A/C CONTROLLER



Salient Features:

1. Controls Two Air Conditioners.
2. Separate Phase Supply for each AC.
3. Bright RED 4 digit LED Display.
4. Accurate Temperature sensing by precise temperature sensor.
5. Time sharing for Compressors to share load equally.
6. Voltage & Current Protections for each compressor.
7. Separate alarm relay contacts for AC Fail.
8. Separate alarm relay contacts for Room High.
9. Hour counters for Compressor ON period to check its reliability.
10. Display of all the A/C Parameters & fault messages (if any fault present) in a scrolling on display.
11. Display Hold feature by using ENTER Key. Press it again to release the hold.
12. Various set points are settable through the following menus:
a) SET b) DLAY c) OFST d) RSET
13. Password Protection for all the settings.
14. Cyclic ON & Operations of both ACs on Sensor fail mode.
15. Auto (with all protections)/manual (without protection) Modes.
16. Controller Bypass features by provision of switch on front panel.
17. LED Indications to observe the status.

Technical Specifications:

1. Supply Voltage: 230 V AC, 50 Hz +/- 15% separate for each A/C.
2. Contact rating: 30 A at 230 V AC for compressor Live Outputs & 5 A at 250 V AC Alarm Potential free outputs(C, N/O)
3. Temperature Sensor: Thermistor sensor NTC 10K @ 25 °C metal body with clamp. Sensor cable length 2.75 meters.
4. Temperature sensing range: 0 - 55°C
5. Resolutions: 1 V for voltage, 0.1 A for Current & 0.1 degree C for Temperature.
6. Auto/Controller Bypass Switch is used to bypass the controller i.e. A/C 1 & A/C 2 will remains ON(irrespective of temperature demands) if both switches are in ON condition.

7. Indications :
 - a) Supply ON for A/C 1 & A/C 2: Colour: Yellow
 - b) Auto Mode for A/C 1 & A/C 2: Colour: Green
 - c) Manual Mode for A/C 1 & A/C 2: Colour: Red
 - d) A/C 1 & A/C 2 ON: Colour: Green
 - e) A/C 1 & A/C 2 Fault: Colour: Red
 - f) Room High: Colour: Red
 - g) Healthy: Colour: Green
8. Keys: four keys for parameter settings.
 - a) SET Key: To enter into SET Mode/To View next set point.
 - b) UP Arrow Key: To increment the set point/To view next menu/To view next set point in the menu.
 - c) Down Arrow Key: To decrement the set point/To view previous menu/To view previous set point in the menu.
 - d) Enter Key: To come out of SE mode/To enter into menu/ To accept the password.
9. Mounting: Wall mounting Size: 230 mm (H) X 225 mm (W) X 100 mm (D).

Sr No	Modes	Description	
1	Run Mode		
	Sr. no	Display Message	Description
	1	t-C	Room Temperature
	2	VoL1	AC 1 Voltage
	3	VoL2	AC 2 Voltage
	4	Cur1	AC 1 Current
	5	Cur2	AC 2 Current
	6	bAL-	Balance Cycle Time
	7	Hr-1	AC1 Hour
	8	Hr-2	AC2 Hour
	9	r-Hi	High Temperature Alarm
	10	oV-1	AC 1 Over Voltage
	11	oV-2	AC 2 Over Voltage
	12	uV-1	AC 1 Under Voltage
	13	uV-2	AC 2 Under Voltage
	14	oL-1	AC 1 Over Load
	15	oL-2	AC 2 Over Load
	16	uL-1	AC 1 Under Load
	17	uL-2	AC 2 Under Load
	18	SnFL	Sensor Fail
19	PFL1	AC 1 Power Fail	
20	PFL2	AC 2 Power Fail	
2	Key Operation		
	Sr. No	Display Message	Description
	1	SET Key	To enter into SET mode/To save the changes.
	2	ENTER Key	To save the changes & to come out of SET Mode.
	3	UP Arrow Key	To Increment the value.
4	Down Arrow Key	To Decrement the value.	

Sr No	Modes	Description	
3	SET Mode	User can view /change the set point in this mode	
	Sr. no	Display menu	Description
	1	Set-	User can view/change the Temperature/UV/OV/UL/OL/ Auto set points & AC selection i.e. Window/ Split.
	2	dLAY	User can view / change delay set point.
	3	ofSt	User can view/ change the offset set points for AC1/AC2 voltages, currents & Room Temperature.
	4	rSet	To reset the Faults/ Hours Counters.
	Passwords		User can enter into menus by entering the correct passwords.
	Sr. No	Display Menu	Password
	1	Set-	Factory set: 9995 User settable: default 9995
	2	dLAY	Factory set: 9994 User settable: default 9994
	3	ofSt	Factory set: 9993 User settable: default 9993
	4	rSet	Factory set: 9992 User settable: default 9992
	SET Menu		To display SET Menu parameter press SET Key, display will show the message Set Mod & then display "Set-", then press ENTER key, controller will ask for password by showing Message Entr PASS & then display 0000. Now enter password with the help of arrow keys & press ENTER key. If the password is correct, controller show message PASS Corr & will show the set point. Now user can view/change Set-menu set points by pressing SET key again & again to see next parameters. If password not correct controller show error message.
	Sr. No	Display Set point Message	Description
	1	AC-1 - on-	AC1 cut in set point Default value: 23.0 °C Range: 20.0 °C to 40.0 °C
2	AC-1 -OFF-	AC1 cut off set point Default value: -3.0 °C Range: 20.0 °C to 40.0 °C	
3	AC-2 - on-	AC2 cut in set point Default value: 24.0 C Range: 20.0 °C to 40.0 C	
4	AC-2 - OFF-	AC2 cut off set point Default value: -3.0 °C Range: 20.0 C to 40.0 °C	
5	r-Hi - on-	Room High cut in set point Default value: 25.0 °C Range: 25.0 °C to 37.0 °C	
6	r-Hi -OFF-	Room High cut in set point Default value: 25.0 °C Range: 25.0 °C to 37.0 °C	
7	uVSt	Under Voltage set point. Default value: 160V Range: 100 to 200V. ON	

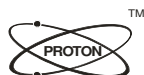
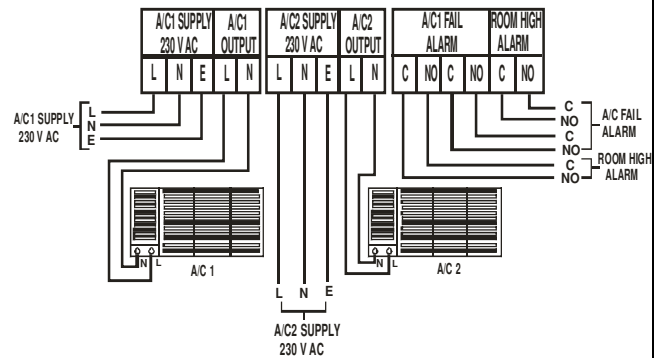
8	oVSt	Hysteresis +10V Over Voltage set point. Default value: 270 V Range: 240 to 300 V. ON Hysteresis -10V		
	9	uLSt	Under Load set point. Default value: 3.0 A Range: 0.8 to 3.0 A.	
	10	oLSt	Over Load set point. Default value: 15.0 A Range: 12.0 to 30.0 A.	
	11	AC1	AC1 Auto/Manual Selection. Default: Auto Auto- AC1 have all protection Man- AC1 Protections Bypass.	
	12	AC2	AC2 Auto/Manual Selection. Default: Auto Auto- AC2 have all protection Man- AC2 Protections Bypass.	
	13	AC SeL Win	Machine selection i.e. Window/ Split Default: Window AC Selected For Window AC Selection AC1 & AC2 restart delays are 180 & 190 Seconds respectively For Split AC Selection AC1 & AC2 restart delays are 5 & 10 Seconds respectively	
	14	SET-PASS	Default: 9995 Range: 0000 to 9999	
	2	dLAY Menu	To enter into Delay menu, the password selection process is same for all menu as mention in SET Menu.	
		Sr. No	Display Message	Description
		1	CYCL	Cycle time to swap AC1 & AC2 Temperature set point Default: 360 minutes Range: 5 to 9995 Minutes.
		2	InTr ACon	Inter AC ON Delay Default : 10 Seconds Range: 2 to 300 Seconds
		3	-oV-triP	Over Voltage trip delay Default: 5 Sec. Range: 3 to 180 Seconds
		4	-uV-triP	Under Voltage trip delay Default: 5 Sec. Range: 3 to 180 Seconds
		5	-oL-triP	Over Load trip delay Default: 5 Sec. Range: 3 to 180 Seconds
6		-uL-triP	Under Load trip delay Default: 300 Sec. Range: 10 to 180 Seconds	
7		SnFL -on-	AC Sensor fail ON delay Default: 60 Minutes Range: 5 to 995 minutes	
8		SnFL -off-	AC Sensor fail Off delay Default: 15 Minutes Range: 5 to 995 minutes	
9		dLAY PASS	Default: 9994 Range: 0000 to 9999	
ofSt Menu		To enter into Offset menu, the password selection process is same for all menu as mention in SET Menu.		
Sr. No		Display Message	Description	
1		V1-P	AC1 Voltage + Offset Default 0V Range: 0 to 50 V	
2	V1--	AC1 Voltage - Offset Default 0 V Range: 0 to 50 V		
3	V2-P	AC2 Voltage + Offset		

			Default 0V Range: 0 to 50 V
4	V2--		AC2 Voltage - Offset Default 0 V Range: 0 to 50 V
5	A1-P		AC1 Current + Offset Default 0.0 A Range: 0.0 to 5.0 A
6	A1--		AC1 Current - Offset Default 0.0 A Range: 0.0 to 5.0 A
7	A2-P		AC2 Current + Offset Default 0.0 A Range: 0.0 to 5.0 A
8	A2--		AC2 Current - Offset Default 0.0 A Range: 0.0 to 5.0 A
9	rt-P		Room Temperature + Offset Default 0.0 °C Range: 0.0 to 5.0 °C
10	rt--		Room Temperature - Offset Default 0.0 °C Range: 0.0 to 5.0 °C
11	oFSt PASS		Default: 9993 Range: 0000 to 9999
	rSet Menu		To enter into Reset menu, the password selection process is same for all menu as mention in SET Menu.
	Sr. No	Display Message	Description.
	1	rSet FALt	Reset AC1 & AC2 Faults.
	2	rSet HoUr	Reset AC1 & AC2 Hour.

Working:

Sr. No	Description
1	After power ON delay over if room temperature demands with respective to AC1 ON set point & Ac2 ON set point, AC 1 & AC2 will be ON. Which of the AC becomes ON first, after Inter AC ON delay over other AC will be allowed to ON.
2	AC 1 will be ON after its ON Delay of 180 s for window AC & 5 sec for split AC.
3	AC 2 will be ON after its ON Delay of 190 sec+ Inter AC ON delay 10 sec for window AC & 10 sec+ Inter AC ON delay 10 sec for split AC.
4	If Room temperature decreases below [AC1 ON set point – AC1 OFF set point], AC1 will be OFF.
5	If Room temperature decreases below [AC2 ON set point – AC2 OFF set point], AC2 will be OFF.
6	AC 1 & AC 2 set point will get interchanged after cycle time for the purpose of load sharing.
7	If any fault occurs to one machine there will be cycle changeover if that machine AC ON set point is lower than other. So now other machine will operate with full load.
8	All faults are auto reset fault.
9	After temperature cut in /fault recovery, AC will be ON after their restart delays.
10	In Manual mode foe AC1 & AC2 will not be protected by uv, ov, ul, ol, faults.
11	In sensor fail condition, one of the AC will remain ON foe AC sensor fail ON time & will remains OFF for AC sensor fail OFF Time.

Terminal Layout:



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